

Statistical bulletin

# National life tables – life expectancy in the UK: 2017 to 2019

Trends in period life expectancy, a measure of the average number of years people will live beyond their current age, analysed by age and sex for the UK and its constituent countries.



Contact:  
Edward Morgan and Stephen  
Rozée  
[pop.info@ons.gov.uk](mailto:pop.info@ons.gov.uk)  
+44 (0)1329 444661

Release date:  
24 September 2020

Next release:  
September 2021

## Table of contents

1. [Main points](#)
2. [Life expectancy at birth in the UK](#)
3. [Single-year life tables](#)
4. [Life expectancy at birth in UK countries](#)
5. [International comparisons of annual life expectancy improvements](#)
6. [Life expectancy at age 65 years in the UK](#)
7. [National life tables – life expectancy in the UK data](#)
8. [Glossary](#)
9. [Measuring the data](#)
10. [Strengths and limitations](#)
11. [Related links](#)

# 1 . Main points

- Life expectancy at birth in the UK in 2017 to 2019 was 79.4 years for males and 83.1 years for females; slight improvements were observed from 2016 to 2018 of 6.3 weeks and 7.3 weeks for males and females respectively.
- The relatively low increases in life expectancy at birth in 2017 to 2019 suggest a continuation of a trend observed since 2011, where annual life expectancy improvements have slowed down in comparison with the previous decade.
- In comparison with selected Organisation for Economic Co-operation and Development (OECD) countries for which data are available, England, Wales and Scotland have among the lowest annual improvements in life expectancy at birth for both males and females.
- Life expectancy at age 65 years was 18.8 years for males and 21.1 years for females, with an improvement of 6.3 weeks for both males and females in comparison with 2016 to 2018.

## Statistician's comment

"The improvements in life expectancy at birth for males and females in the UK between 2016 to 2018 and 2017 to 2019, although lower than historical improvements prior to 2011, were the highest annual improvements for 5 years.

"The gap in annual improvements in life expectancy at birth between males and females has been narrowing since 2013 to 2015. In 2017 to 2019, female life expectancy improvements were seen to slightly exceed those for males for the first time since the start of the published data series in 1981 to 1983. However, it is too early to say whether this is a trend that will continue into the future.

"The impact of COVID-19 on period life expectancy will be shown in the National life table for 2018 to 2020 which will be published in Autumn 2021. The National life tables 2017 to 2019 were produced using data up to the end of December 2019, and therefore precede the COVID-19 pandemic."

Edward Morgan, Centre for Ageing and Demography, Office for National Statistics

Follow Centre for Ageing and Demography on Twitter [@RichPereira](https://twitter.com/RichPereira) [ONS](https://twitter.com/ONS)

## 2 . Life expectancy at birth in the UK

The impact of the coronavirus (COVID-19) on period life expectancy will be shown in the national life tables for 2018 to 2020, which will be published in autumn 2021. The national life tables for 2017 to 2019 were produced using data up to the end of December 2019; therefore, all data presented in this bulletin and its accompanying datasets precede the coronavirus pandemic.

Following decades of steady increases in life expectancy in the UK, a marked slowdown in the rate of improvements has been observed since 2011. Between 2002 to 2004 and 2009 to 2011, life expectancy at birth in the UK increased each year by an average of 16.7 weeks for males and 12.7 weeks for females. In contrast, between 2010 to 2012 and 2017 to 2019, these improvements slowed to an average of 6.3 weeks and 4.2 weeks per year for males and females respectively.

In 2017 to 2019, life expectancy at birth in the UK was 79.4 years for males and 83.1 years for females. Although life expectancy improvements in the UK have been low since 2011 compared with previous decades, this is the highest ever observed life expectancy for both sexes (Figure 1).

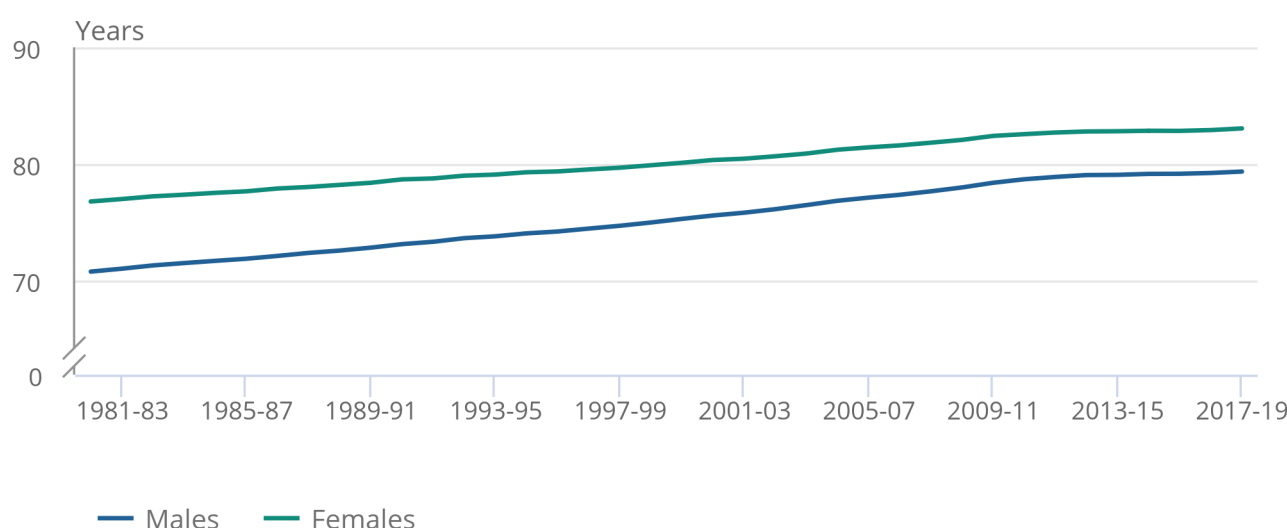
An examination of the causes of the slowdown in life expectancy improvements since 2011 is included in the [National life tables, UK: 2016 to 2018 bulletin](#).

### Figure 1: Increases in life expectancy in the UK have slowed down since 2011

Life expectancy at birth for males and females, UK, between 1980 to 1982 and 2017 to 2019

#### Figure 1: Increases in life expectancy in the UK have slowed down since 2011

Life expectancy at birth for males and females, UK, between 1980 to 1982 and 2017 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

Figure 2 shows the annual improvements in life expectancy at birth in the UK measured in weeks per year between 1981 to 1983 and 2017 to 2019. Low levels of improvement occurred between 2012 to 2014 and 2015 to 2017, after which slightly higher increases were observed in 2016 to 2018 and 2017 to 2019.

Since 1981 to 1983, males have almost always experienced greater improvements in life expectancy at birth than females. However, the gap in improvements between males and females began to narrow from 2013 to 2015, and in 2017 to 2019 life expectancy improvement was slightly greater for females (an increase of 7.3 weeks) than for males (an increase of 6.3 weeks).

A possible explanation for the convergence of life expectancy improvements between the sexes is that, following decades of healthier lifestyles and safer working conditions, males have narrowed the life expectancy gap with females to 3.7 years. Throughout the 20th century, the proportion of the agricultural and manufacturing workforce has been in decline. These jobs, which are more dangerous and require more physical labour, have proportionally moved to the [service sector](#), which is generally safer and less physical.

There has also been a reduction in the proportion of men [smoking](#), and the percentage point gap between males and females who smoke has become smaller. For example, in 1980 in Great Britain, 42.4% of men aged over 16 years smoked compared with 36.8% of women; in 2019, this had reduced to 17.9% of men and 13.8% of women.

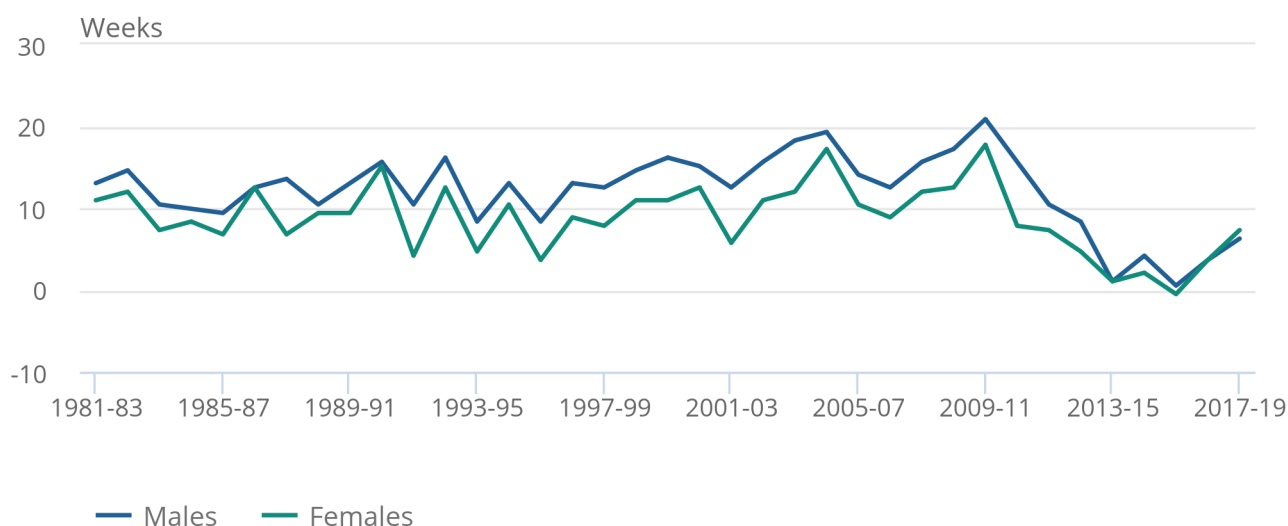
While these changes are likely to have driven greater improvements in life expectancy for males than females during the last four decades, the benefits may now be less pronounced. As a result, the gap between male and female life expectancy improvements has narrowed to a historical low. As this is the first time since the start of the published data series in 1981 to 1983 that female life expectancy improvements have been seen to exceed those for males, it is too early to say whether this is a trend that will continue in the future.

**Figure 2: Recent improvements in life expectancy at birth have been lower relative to before 2011, but in 2017 to 2019 they were the highest observed in the last five years**

Annual change in life expectancy at birth in weeks, males and females, UK, between 1981 to 1983 and 2017 to 2019

Figure 2: Recent improvements in life expectancy at birth have been lower relative to before 2011, but in 2017 to 2019 they were the highest observed in the last five years

Annual change in life expectancy at birth in weeks, males and females, UK, between 1981 to 1983 and 2017 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

### 3 . Single-year life tables

While the national life tables are based on an average of three consecutive years of data, for the second consecutive year we have also published [single-year life tables](#). Single-year life tables give a more granular perspective on mortality patterns. However, unlike national life tables, single-year life tables are not [National Statistics](#). They are less robust as they are more sensitive to annual fluctuations in deaths, such as those caused by seasonal events, and should be interpreted with caution.

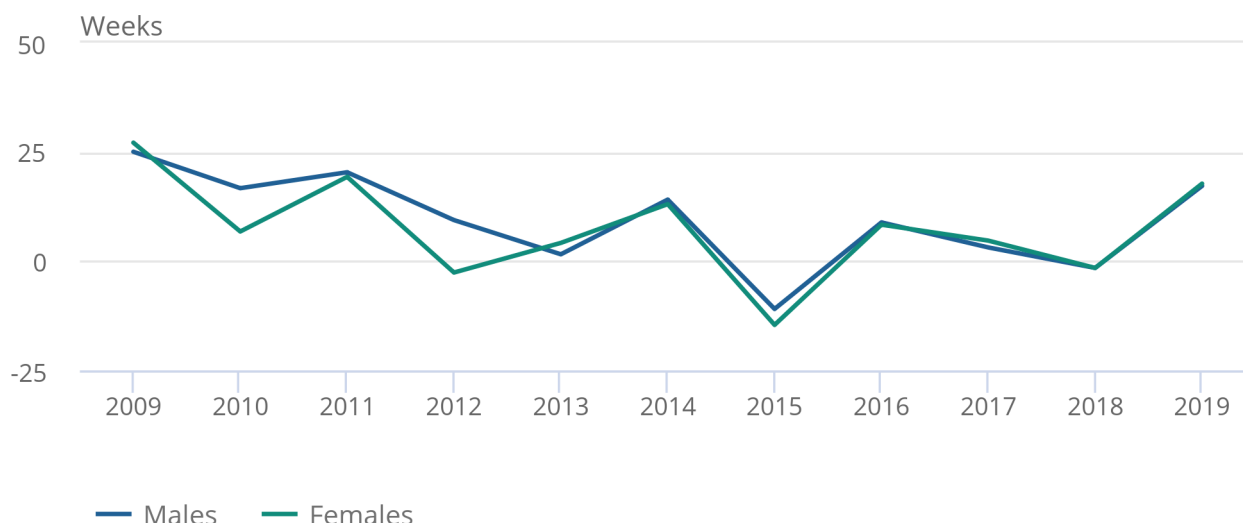
Figure 3 shows annual life expectancy improvements during the period 2009 to 2019, measured in weeks.

### Figure 3: Single-year life tables show improvements in UK life expectancy in 2019 were the highest since 2011

Annual life expectancy at birth improvements, UK, 2009 to 2019

#### Figure 3: Single-year life tables show improvements in UK life expectancy in 2019 were the highest since 2011

Annual life expectancy at birth improvements, UK, 2009 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

Mortality rates rose in 2015 because of high excess winter mortality in the winter of 2014 to 2015, when atypically [high numbers of deaths caused by pneumonia occurred](#). This winter season continued to have an influence on the size of the improvements observed in the 2015 to 2017 national life table, resulting in no overall increases for those years when the figures for 2016 and 2017 were taken into account. Small increases in life expectancy at birth for males and females occurred in 2016 and 2017, followed by slight declines for both sexes in 2018.

Greater improvements in life expectancy at birth in the UK were observed in 2019 than in the preceding years since 2011. Compared with 2018, male life expectancy increased by 17.2 weeks and female life expectancy increased by 17.7 weeks.

These gains show that 2019 was a relatively strong year for mortality improvements compared with [2018](#). Mortality rates for both males and females in England and Wales [significantly decreased in 2019](#); there were 1,079.4 deaths per 100,000 males (3.7% fewer than in 2018) and 798.9 deaths per 100,000 females (4.7% fewer than in 2018).

## 4 . Life expectancy at birth in UK countries

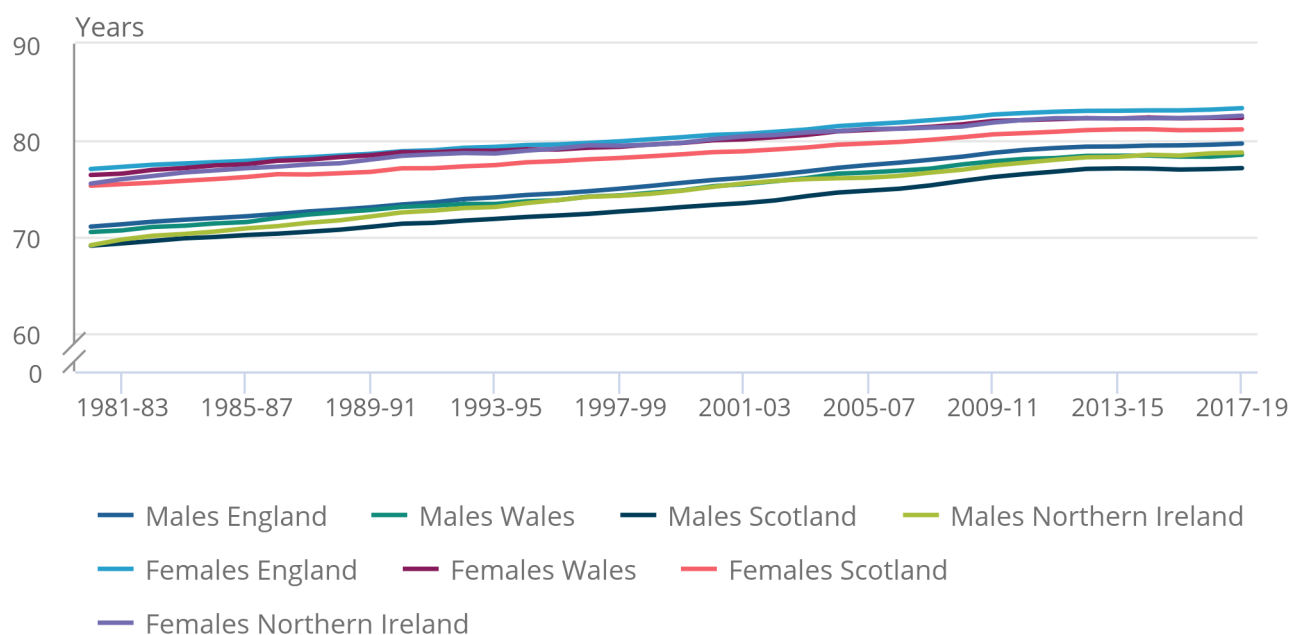
Each of the UK constituent countries experienced either an increase in life expectancy at birth in 2017 to 2019 compared with 2016 to 2018 or saw life expectancy remain unchanged when measured in years. England continued to have the highest life expectancy at birth for males and females, while Scotland continued to have the lowest for both sexes. Similarly to the UK as a whole, the slowdown in life expectancy improvements since 2011 continued to be observed for each constituent country in 2017 to 2019. Figure 4 shows the variation in life expectancy at birth among the countries of the UK.

**Figure 4: Life expectancy at birth for males and females in 2017 to 2019 continued to show a slowdown of improvements across the UK constituent countries**

Life expectancy at birth, males and females, UK countries, between 1980 to 1982 and 2017 to 2019

Figure 4: Life expectancy at birth for males and females in 2017 to 2019 continued to show a slowdown of improvements across the UK constituent countries

Life expectancy at birth, males and females, UK countries, between 1980 to 1982 and 2017 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

Improvements in life expectancy at birth occurred in 2017 to 2019 for males in England, Wales and Scotland, and males experienced the highest life expectancy at birth ever observed in those countries. Male life expectancy at birth remained unchanged in Northern Ireland. Females in England and Northern Ireland experienced increases in life expectancy at birth in 2017 to 2019, resulting in the highest life expectancy seen in those countries. Life expectancy at birth for females in Wales and Scotland remained unchanged.

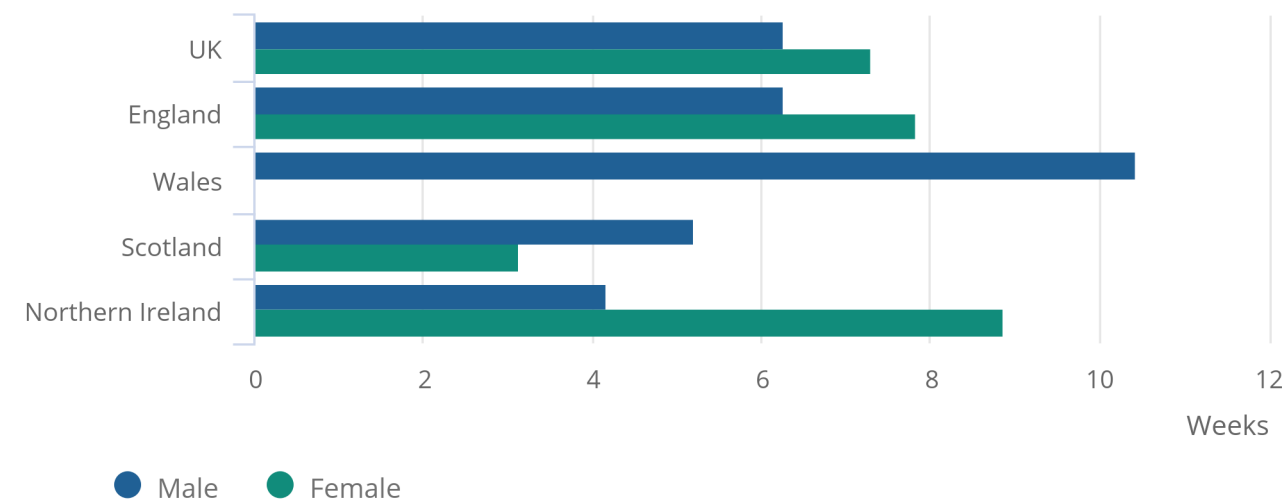
Figure 5 shows that, when measured in weeks, there have been small increases in life expectancy at birth for males and females across each of the UK constituent countries except for females in Wales, where no improvement was observed. This has led to slight increases in life expectancy at birth measured in years (and rounded to one decimal place) across the four constituent countries except for males in Northern Ireland and females in Wales and Scotland, as described earlier.

**Figure 5: Slight improvements in life expectancy were recorded for most across UK constituent countries**

Change in life expectancy at birth in weeks, UK and UK countries, between 2016 to 2018 and 2017 to 2019

Figure 5: Slight improvements in life expectancy were recorded for most across UK constituent countries

Change in life expectancy at birth in weeks, UK and UK countries, between 2016 to 2018 and 2017 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

Notes:

1. When considering the influence of each constituent country on the UK trend, trends in England are most dominant as England makes up the largest proportion of the UK population.

As well as variation between the UK countries, life expectancy at birth varies sub-nationally and is affected by a number of localised factors. For example, the gap between the highest and lowest life expectancy at birth among local areas of the UK was 11.3 years for males and 8.7 years for females in 2017 to 2019, which is examined in [Life expectancy for local areas of the UK: between 2001 to 2003 and 2017 to 2019](#).

## 5 . International comparisons of annual life expectancy improvements

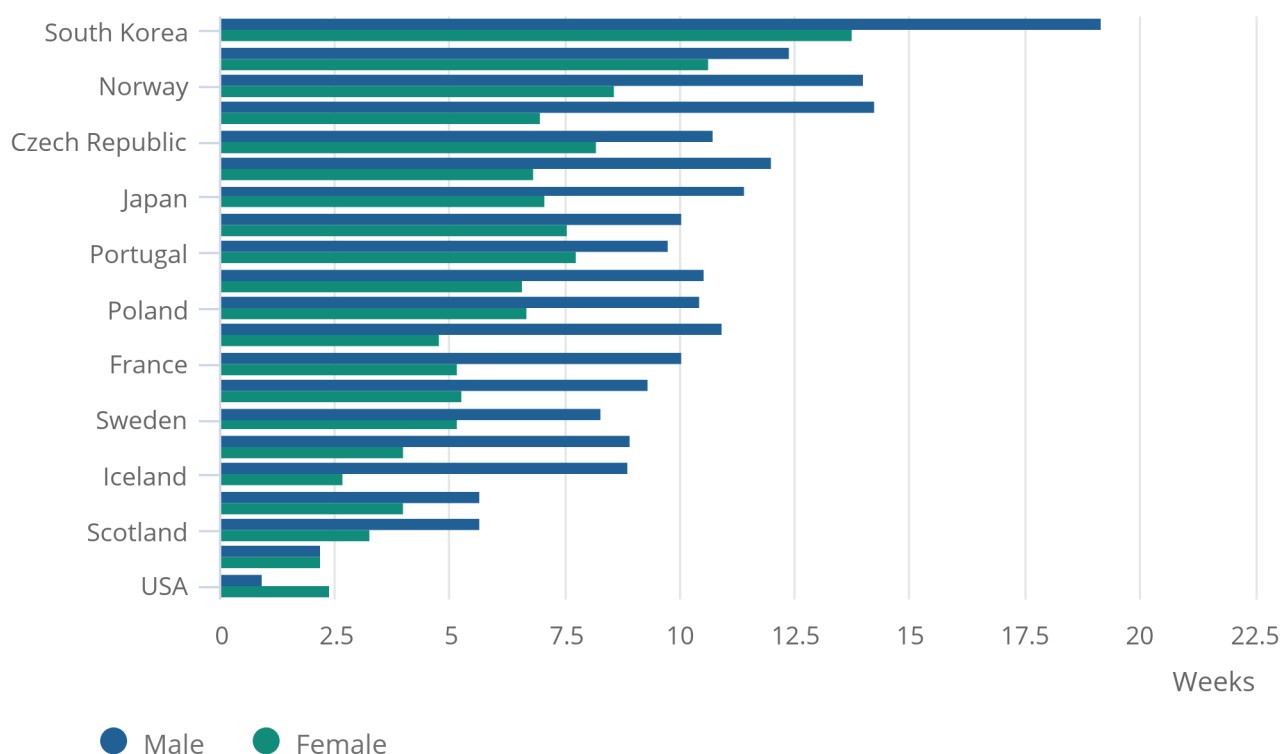
Figure 6 shows the average annual life expectancy improvements of the UK in comparison with selected Organisation for Economic Co-operation and Development (OECD) countries, for both males and females during the period 2011 to 2018.

**Figure 6: The countries of the UK have seen low life expectancy improvements during 2011 to 2018 compared with selected OECD countries**

Average annual increase in period life expectancy at birth in weeks, selected Organisation for Economic Co-operation and Development (OECD) countries, 2011 to 2018

Figure 6: The countries of the UK have seen low life expectancy improvements during 2011 to 2018 compared with selected OECD countries

Average annual increase in period life expectancy at birth in weeks, selected Organisation for Economic Co-operation and Development (OECD) countries, 2011 to 2018



**Source:** Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency, and Human Mortality Database

**Notes:**

1. Countries with a similar level of economic development to the UK were selected for which period life expectancy at birth data for 2018 were available in the Human Mortality Database at the time of publishing this bulletin.
2. Countries have been ordered as an average of male and female values.

Figure 6 shows that of the 21 selected countries, England, Wales and Scotland experienced some of the lowest average annual life expectancy improvements during the period 2011 to 2018. However, the UK has not been the only country where life expectancy improvements have slowed since 2011, as this has occurred in a [number of other high-income countries](#) across the world.



## 6 . Life expectancy at age 65 years in the UK

If those aged 65 years were to experience the same age-specific mortality rates seen in 2017 to 2019 for the rest of their lives, a 65-year-old male could expect to live on average for a further 18.8 years and a female for 21.1 years, which represent the highest life expectancies at age 65 years ever observed in the UK (Figure 7).

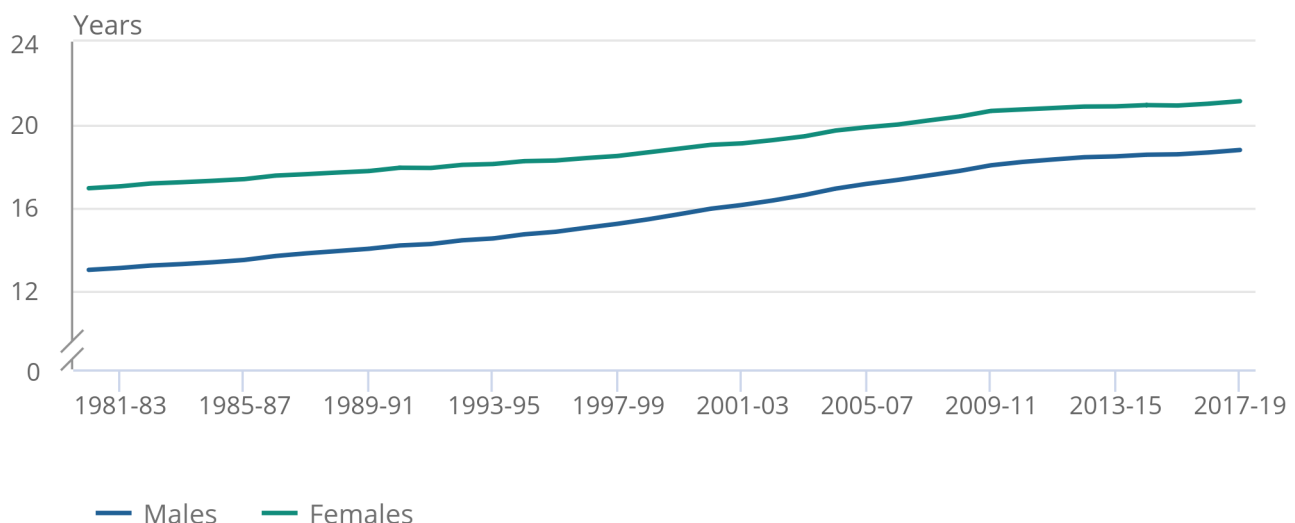
However, as with life expectancy at birth, life expectancy at age 65 years in the UK has been improving at a slower rate since 2011 compared with previous decades. Figure 7 shows that compared with 2016 to 2018, both males and females have experienced increased life expectancy at age 65 years of 6.3 weeks in 2017 to 2019.

**Figure 7: Improvements in life expectancy at age 65 years in the UK have slowed down since 2011**

Life expectancy at birth for males and females, UK, between 1980 to 1982 and 2017 to 2019

### Figure 7: Improvements in life expectancy at age 65 years in the UK have slowed down since 2011

Life expectancy at birth for males and females, UK, between 1980 to 1982 and 2017 to 2019



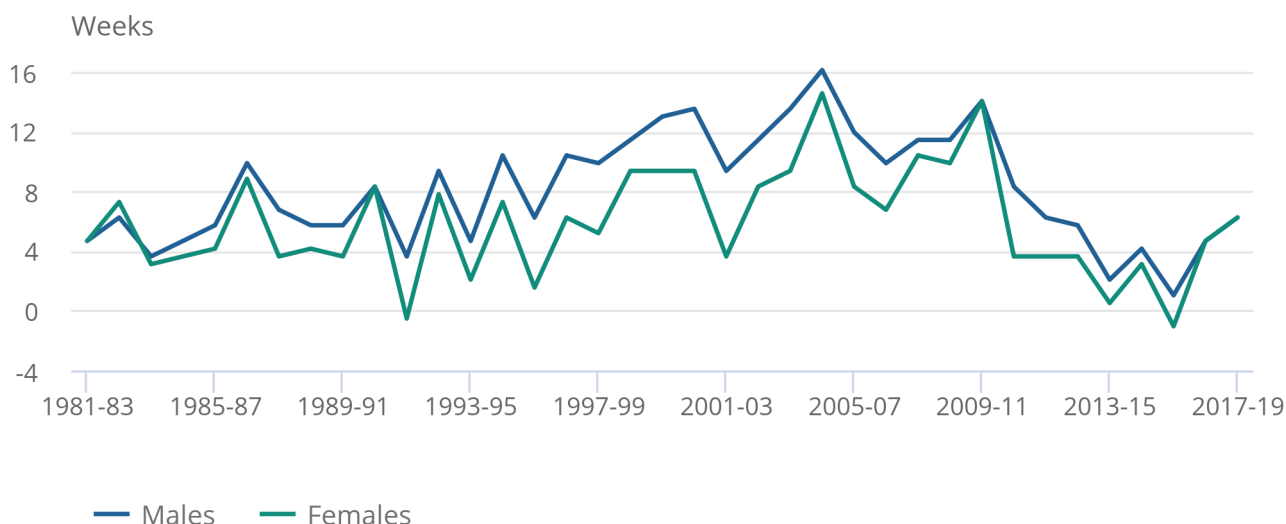
Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

**Figure 8: Improvements in life expectancy at age 65 years have risen since 2016 to 2018**

Annual change in life expectancy at age 65 years in weeks, males and females, UK, between 1981 to 1983 and 2017 to 2019

## Figure 8: Improvements in life expectancy at age 65 years have risen since 2016 to 2018

Annual change in life expectancy at age 65 years in weeks, males and females, UK, between 1981 to 1983 and 2017 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

## How improvements in life expectancy at age 65 years differ among UK constituent countries

Improvements were seen in life expectancy at age 65 years for both sexes across all constituent countries of the UK. The highest level of improvement was observed for females in Northern Ireland, with an increase of 8.9 weeks compared with 2016 to 2018, and the lowest for females in Scotland, with 3.1 weeks. Among males, the highest growth in life expectancy at age 65 years was seen in Wales, with an improvement of 7.8 weeks, and the lowest in England, with an improvement of 5.7 weeks.

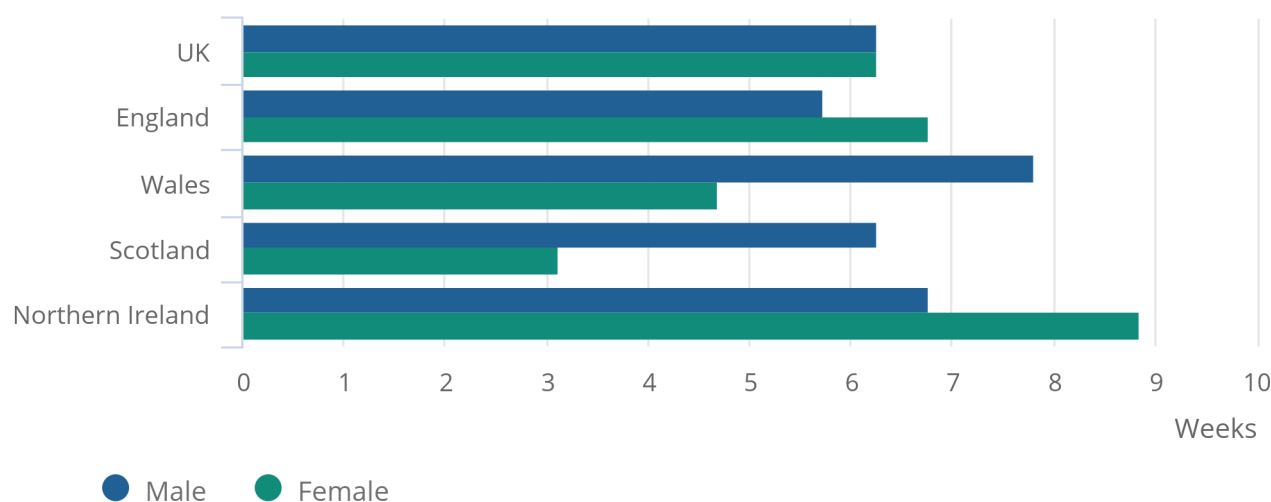
Compared with the changes in life expectancy at birth shown in Figure 6, similar levels of improvement were seen at age 65 years for males in the UK as a whole, with very slightly lower increases for females. The greatest difference was for females in Wales, who experienced an increase in life expectancy of 4.7 weeks at age 65 years, compared with no improvement in life expectancy at birth. This is because infant and child mortality was slightly lower than the UK average for females in Wales between 2014 to 2016 and 2016 to 2018, before rising closer to the UK average in 2017 to 2019. As a result, in 2017 to 2019 no improvements in life expectancy at birth for females in Wales were observed.

**Figure 9: UK constituent countries experienced a variety of life expectancy improvements at age 65 years between 2016 to 2018 and 2017 to 2019**

Change in life expectancy, UK and UK constituent countries, between 2016 to 2018 and 2017 to 2019

**Figure 9: UK constituent countries experienced a variety of life expectancy improvements at age 65 years between 2016 to 2018 and 2017 to 2019**

Change in life expectancy, UK and UK constituent countries, between 2016 to 2018 and 2017 to 2019



Source: Office for National Statistics – National life tables – life expectancy in the UK: 2017 to 2019

## **Around one in five boys and one in three girls born in 2017 to 2019 are expected to live to 90 years old**

In 2017 to 2019, a new-born male in the UK had a 21.7% chance of living to age 90 years, while a new-born female had a 32.9% chance. This represents an increase of 0.5% and 0.6% for males and females respectively compared with 2016 to 2018. It should be noted that these increases are based only on current mortality rates and do not account for future improvements in mortality, which are examined in [Past and projected period and cohort life tables, 2018-based, UK: 1981 to 2068](#).

UK life expectancy at age 90 years was 4.1 years for males, remaining unchanged from 2016 to 2018, and 4.7 years for females, which shows a small improvement of 0.1 years.

Although improvements in life expectancy at age 90 years have been low, we are still seeing an increasing number of people aged 90 years and over in the UK. This is because previous improvements in mortality over many decades have resulted in an increasing proportion (and number) of people reaching age 90 years over time. Further analysis on this topic is available in [Estimates of the very old, including centenarians, UK: 2002 to 2019](#).

## 7 . National life tables – life expectancy in the UK data

### [National life tables: UK](#)

Dataset | Released 24 September 2020

Period life expectancy by age and sex for the UK. Each national life table is based on population estimates, births and deaths for a period of three consecutive years. Tables are published annually.

### [National life tables: England](#)

Dataset | Released 24 September 2020

Period life expectancy by age and sex for England. Each national life table is based on population estimates, births and deaths for a period of three consecutive years. Tables are published annually.

### [National life tables: Wales](#)

Dataset | Released 24 September 2020

Period life expectancy by age and sex for Wales. Each national life table is based on population estimates, births and deaths for a period of three consecutive years. Tables are published annually.

### [National life tables: Scotland](#)

Dataset | Released 24 September 2020

Period life expectancy by age and sex for Scotland. Each national life table is based on population estimates, births and deaths for a period of three consecutive years. Tables are published annually.

### [National life tables: Northern Ireland](#)

Dataset | Released 24 September 2020

Period life expectancy by age and sex for Northern Ireland. Each national life table is based on population estimates, births and deaths for a period of three consecutive years. Tables are published annually.

View all data used in this statistical bulletin on the [Related data page](#).

## 8 . Glossary

### Life table

A life table is a demographic tool used to analyse death rates and calculate life expectancies at various ages. We calculate life tables separately for males and females because of their different mortality patterns.

### Life expectancy

Life expectancy is a population-based statistical measure of the average number of years a person has before death. Life expectancies can be calculated for any age and give the further number of years a person can, on average, expect to live given the age they have attained.

### Life expectancy improvements

Life expectancy improvements refer to the differences in life expectancy by age and sex calculated between one year and the next. These differences are referred to as “improvements” because life expectancy typically increases year on year. Worsening life expectancy would be shown as a negative improvement. Life expectancy improvements are presented in this bulletin in weeks.

## 9 . Measuring the data

National life tables are produced annually for the UK by the Office for National Statistics (ONS) and constituent countries; this latest release for 2017 to 2019 follows on from the [2016 to 2018 life tables](#) published last year. National life tables are based on three consecutive years of data (in this case 2017, 2018 and 2019) to reduce the effect of annual fluctuations in the number of deaths caused by seasonal events such as "flu".

The national life tables are "period" life tables, and all figures referred to in this bulletin are "period" life expectancies. Period life expectancy is the average number of additional years a person would expect to live if he or she experienced the age-specific mortality rates of the given area and time period for the rest of their life. Other measures of lifespan, such as [median and modal age of death](#), give a value that is more closely associated with "typical" ages of death and is always a value higher than life expectancy at birth. This is because these measures are less influenced by infant and child mortality.

For Figure 6, life expectancies were obtained from the Human Mortality Database (HMD) for countries other than the UK. Further explanation of the methods used to produce these data can be found in [HMD Method protocol \(PDF, 1.01MB\)](#).

Figures in the commentary in this bulletin are rounded to one decimal place. Calculations in this bulletin have been made using unrounded figures, and life expectancy estimates to two decimal places can be found in the datasets for this release.

Further explanation of the methodology used to create the national life tables is available in our [Guide to calculating national life tables](#).

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in the [National life tables QMI](#).

## 10 . Strengths and limitations

The figures published in this release will show marginal differences with those published in previous years. This is because [estimates of the very old are revised](#) each year to improve accuracy, as new data become available. In previous publications, these revisions have not been taken into account in historical life tables. However, since the 2016 to 2018 life tables, the Office for National Statistics (ONS) has revised historical life tables to incorporate the latest estimates of the very old.

Estimates of the very old for Northern Ireland prior to 2001 are not published separately. This is because of changes in the mid-year population estimates methodology since mid-2001, which gives rise to inconsistencies in the resulting Kannisto-Thatcher estimates of the very old for some earlier years. At the time of publication, the current estimates of the very old are the most accurate currently available.

The national life tables use a complete life table methodology and should be used by anyone making national comparisons of life expectancy. The ONS also publishes subnational life expectancies, which use an abridged life table method. National life expectancy estimates are produced as part of the subnational life expectancy release. These will differ slightly to those published in the national life tables because of the different methodologies used, and they are published to allow users to compare subnational and national life expectancies produced on the same basis. For more information on the various ONS life expectancy releases and their uses please see [Life expectancy releases and their different uses](#).

We have also published single-year life tables alongside our three-year average life tables. These have been published as a result of evidence of user need for single-year data. Single-year life tables are suited for analyses that require annual data and need more detailed information about mortality patterns. They can give a more granular and up-to-date perspective on whether mortality patterns are improving, worsening or staying in equilibrium than three-year average life tables.

However, single-year life tables show figures that are typically more volatile than three-year average life tables. This is often because of one-off events, such as a flu epidemic, that can affect mortality rates dramatically for only a short period. In this respect, single-year life tables are less robust an indicator of mortality trends.

For this reason, they should not be used alone to draw conclusions about longer-term trends. Furthermore, smaller populations such as the UK constituent nations other than England are more prone to short-term volatility as single events can have a large effect on an already small population.

## **National Statistics status for National life tables – life expectancy in the UK: 2017 to 2019**

[National Statistics](#) status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

Date of most recent full assessment: [April 2011](#)

Most recent compliance check that confirms National Statistics status: not applicable

Improvements since last review:

- Published an article detailing [life expectancy releases and their different uses](#).
- Published a [guide](#) explaining the methodology used to calculate the national life tables.
- We can now update the back series for each release to account for any changes to the historical input data.
- Details of other revisions are available in the [National life tables QMI](#).

## 11 . Related links

### [Where to find statistics on UK deaths involving the coronavirus \(COVID-19\) and infection rates by country](#)

Article | Updated 19 May 2020

Links to statistics on coronavirus (COVID-19) deaths and infection rates published by the different constituent countries of the UK.

### [Life expectancy for local areas of the UK: between 2001 to 2003 and 2017 to 2019](#)

Bulletin | Released 24 September 2020

Subnational trends in the average number of years people will live beyond their current age measured by "period life expectancy".

### [Estimates of the very old, including centenarians, UK: 2002 to 2019](#)

Bulletin | Released 25 September 2020

Annual mid-year population estimates for people aged 90 years and over by sex and single year of age (90 to 104) and 105 years and over, and comparisons between UK countries.

### [Past and projected period and cohort life tables, 2018-based, UK: 1981 to 2068](#)

Bulletin | Released 2 December 2019

Life expectancy (e), probability of dying (q) and numbers surviving (l) from the period and cohort life tables, past and projected, for the UK and constituent countries.

### [Changing trends in mortality: a cross-UK comparison, 1981 to 2016](#)

Article | Updated 7 August 2018

Analysis of age-specific and age-standardised mortality rates for the UK, England, Wales, Scotland and Northern Ireland from 1981 to 2016.

### [Changing trends in mortality: an international comparison: 2000 to 2016](#)

Article | Updated 7 August 2018

Analysis of period life expectancies and mortality in selected countries globally from 2000 to 2016.